during those months for which we have simultaneous records the differences between the Colon barometer and the Alhajuela barograph ought to give us a correction nearly uniform from month to month and therefore applicable throughout the year.

Fortunately the Weather Bureau has records for 7:40 a. m. local time at Colon during August, September, and October, 1902. The observations were made with a standard mercurial barometer properly reduced to standard gravity and sea level. The resulting mean pressures for this one daily observation are 29.826, 29.850, and 29.872 inches, respectively. By conversion these become 757.56, 758.18, and 758.73 millimeters. These figures can be reduced to the average for twenty-four hours by applying the corrections given by the hourly tables for Alhajuela. These corrections are —1.10, —1.19, and —1.14 millimeters. Hence, the mean pressures at Colon at sea level for continuous records will be 756.46, 756.99, and 756.59 millimeters. Now General Abbot gives in his Table 2, page 125, the values for Alhajuela deduced from 24 daily observations, as reduced to sea level by his method, for each month from July, 1899, to December, 1902. Comparing his figures for August, September, and October, 1902, with those just given by us for Colon we find that his figures need a nearly uniform correction of —6.00 millimeters. If the Alhajuela barograph retained its instrumental corrections during these years without change and if the reduction to sea level has been properly done, then this latter comparison indicates that all the monthly means in General Abbot's Table, No. 2, need a correction of —6.00 millimeters in order to reduce them to the standard sea level pressure at Colon. This, therefore, gives for the latter place a mean annual pressure of 757.51 millimeters, or 29.823 inches, as the average for three and a half years' record. Although this conclusion agrees closely with the ordinary charts of isobars yet it needs confirmation. It is greatly to be regretted that the Weather Bureau record is so fragmentary, and that the French record does not include the standard mercurial barometer.—*C. A.*

CORRIGENDA.

MONTHLY WEATHER REVIEW, May, 1899, Vol. XXVII, page 198, column 2, fig. 1, last word of title, for "southeast" read "southwest"; line 27 from the bottom, for "91" per cent read "51." Page 200, column 1, line 8, omit the words "on the coast." Page 202, column 1, line 17 from bottom, for "report" read "connection"; column 2, Table 14, December, 1887, for "16.28" read "12.68."

MONTHLY WEATHER REVIEW October, 1899, page 493, Vol. XXVII, Table III, Bridgetown 5 p. m. for "89.6" read "80.6."

MONTHLY WEATHER REVIEW, OCTOBER, 1900, Vol. XXVIII, page 467, Willemstad, 1 a. m., for "75.9" read "79.5."

MONTHLY WEATHER REVIEW for December, 1902, p. 567, column 2, rainfall table. The stations "Laniakea (Nahuina)" and the station "Upper United States Experiment station (Castle)" are identical. The former name is preferred by Mr. Lyons.

The Station "Vealia" is the same as "Kealia" and the former name should be omitted.

The station "Wahiawa" and the station "Wahiawa (Mountain)" are the same; the latter name is preferred; the elevation is uncertain but is believed to be about 3000 feet.

MONTHLY WEATHER REVIEW for January, 1903, page 31, headline, for "Division of Records and Meteorological Data," read "Division of Meteorological Records."

MONTHLY WEATHER REVIEW for February, 1903, page 69, transpose the numbers and titles of figs. 2 and 1; column 2, line 5, for "fig. 2" read "fig. 1". Page 70, transpose the numbers and titles of figs. 4 and 3.

MONTHLY WEATHER REVIEW for March, 1903, page 127, column 2, line 17, dele "also". Page 128, column 2, line 2, "nue" read "neu". Page 128, column 2, fig. 3, title for "focus" read "forces". Page 129, column 1, line 17, dele "of the". Page 132, column 1, line 1, for "systems" read "system"; column 1, line 26, "north-south" read "north-and-south"; line 27, "east-west" read "east-and-west"; column 1, line 6 from bottom, for "two" read "too"; column 1, note 5, for "42" read "43".

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, temporarily in charge of Division of Meteorological Records.

CHARACTERISTICS OF THE WEATHER FOR MARCH.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart IV and the average values and departures from normal are shown in Tables I and VI.

The chart of normal pressure over the United States and Canada for March shows an area of high pressure, slightly above 30.05 inches, over the region south of the Ohio and east of the Mississippi rivers, and extending eastward to the coast line of the South Atlantic States and the Florida Peninsula. Another area of about equal barometric pressure covers the greater part of Minnesota and the two Dakotas, while a third approaches the coast line of northern and central California.

For March, 1903, the area of high pressure, normal over the Appalachian region, lay far to the northeastward and covered the Middle Atlantic States, New England, and Canadian Maritime Provinces with pressure slightly above 30.20 inches. An area of low pressure, about 29.90 inches, is normal over New Mexico and Arizona, and during the current month covered this region with slightly increased pressure, and extended northwestward over Nevada into Oregon and Washington.

The pressure for the current month was above the normal over the entire region east of the Continental Divide, with marked departures over the eastern portion, ranging from +0.15 over the Middle Atlantic States to +0.35 over the more easterly Canadian Provinces. Over a small area west of the Rocky Mountains the pressure was slightly below the normal.

Compared with similar values for February, 1903, the pressure showed a marked increase over all the territory east of the Mississippi River and north of the east Gulf States, extending eastward into the north Atlantic Ocean. At St. Johns, Newfoundland, the average pressure for March showed an increase over that of the previous month of more than half an inch. Over all the country west of the Mississippi River the pressure decreased from that of February, attaining a maximum negative departure of 0.30 inch or more over the middle Plateau region.

TEMPERATURE OF THE AIR.

The distribution of maximum, minimum, and average surface temperatures is graphically shown by the lines on Chart VI.

Under the influence of the high pressure covering the northeastern part of the country, the normal westerly and northwesterly winds gave way to warm easterly and southerly winds over nearly the entire region east of the one hundredth meridian, which, with a percentage of cloudiness much above the normal, gave for practically the entire month equable temperatures, both day and night, with monthly means far above the average, and at many points higher values than before recorded during the period of observation.

Over large areas in the lower Lake region, the Middle Atlantic States, and New England the average for the month exceeded the normal by from 10.0° to 12.0°. At many points in this region the month will be remembered as the most remarkable on record as regards thermal conditions. At New

Haven, Conn., the mean for the current month, 44.6°, was the highest recorded during the period of one hundred and twenty-five years nearly continuous observation from 1779 to 1903. At New Bedford, Mass., the mean for the current month was the highest recorded in ninety-one years; at Philadelphia, Pa., the highest in seventy-eight years.

In sharp contrast to the above area of positive departures from the normal temperature, was a small area of negative departures over northern Montana and extending into the Canadian Northwest Territories, where the mean temperature for the month averaged 10° or more below the normal.

Maximum temperatures of 80°, and slightly above, occurred over the southern tier of States and Territories, with small areas of 90°, or slightly above, over the lower Rio Grande Valley and western Arizona and southeastern California.

Minimum temperatures as low as —30° were recorded at some of the elevated stations in Wyoming and Colorado, but elsewhere, as a rule, extreme cold did not occur. The line of freezing temperature extended well into Texas and into the central part of the cotton growing States.

The average temperatures for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	8	40.7	+ 8.6	+11.7	+ 3.9
Middle Atlantic	12	48.4	+ 9.1	+11.5	+ 3.8
South Atlantic	10	59.7	+ 6.8	+ 7.0	+ 2.3
Florida Peninsula*	8	70.6	+ 5.2	+ 7.8	+ 2.6
East Gulf	9	61.3	+ 3.5	+ 0.3	+ 0.1
West Gulf	7	59.0	+ 1.2	— 0.7	— 0.2
Ohio Valley and Tennessee	11	52.0	+ 7.8	+ 6.4	+ 2.1
Lower Lake	8	42.1	+ 9.8	+10.6	+ 3.5
Upper Lake	10	35.6	+ 9.0	+12.3	+ 4.1
North Dakota*	8	23.3	+ 3.0	+ 4.3	+ 1.4
Upper Mississippi Valley	11	42.3	+ 6.5	+ 8.5	+ 2.8
Missouri Valley	11	38.9	+ 3.5	+ 5.4	+ 1.8
Northern Slope	7	29.7	— 2.2	+ 2.6	+ 0.9
Middle Slope	6	42.2	+ 0.2	0.0	0.0
Southern Slope*	6	49.4	— 1.0	— 2.9	— 1.0
Southern Plateau*	13	46.6	— 1.0	— 4.4	— 1.5
Middle Plateau*	8	37.1	— 0.9	—12.4	— 4.1
Northern Plateau*	12	38.0	+ 0.2	+ 3.0	+ 1.0
North Pacific	7	43.0	— 2.1	+ 0.8	+ 0.3
Middle Pacific	5	51.0	— 1.4	— 4.3	— 1.4
South Pacific	4	55.0	0.0	— 1.2	— 0.4

*Regular Weather Bureau and selected voluntary stations.

In Canada.—Prof. R. F. Stupart says:

Over the Northwest Territories and British Columbia the month was colder than average. The greatest positive departure, about 12°, occurred near the shores of the Georgian Bay and in the upper Ottawa Valley, from which districts the differences from average became gradually less westward to the western boundary of Manitoba, where it was nil, and eastward to Prince Edward Island, where it was positive to the extent of about 4°. The largest negative departures were between 9° and 12° in southern Alberta.

PRECIPITATION.

The distribution of total monthly precipitation is shown on Chart III.

The precipitation for the month, except in small areas, showed but slight variation from the normal.

Over small areas on the immediate coast of Texas and Louisiana, eastern Florida, the New England coast and over western North Carolina, northern Georgia, and eastern Tennessee heavy rainfalls occurred.

At Corpus Christi, Tex., the amount for the month was 6.0 inches above the normal; at New Orleans, La., the average was exceeded by more than 9.0 inches, and at Jupiter, Fla., by more than 6.0 inches.

Although the rainfall was not generally above the average, the relative humidity showed marked increase above normal values, the only section showing a negative departure was North Dakota. In the east Gulf States and the middle and southern slope regions the values were 11, 14, and 17 per cent above the normal, respectively.

The amount of snowfall for the month, except in the mountain regions was generally deficient. Over New England the fall was remarkably light.

At the end of the month but little snow remained on the ground, except in extreme northern Maine, northern Michigan, and Minnesota, and on the elevated and protected points of the Rocky and Sierra Nevada mountains.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 20. Arizona, 9, 24, 25, 26. Arkansas, 4, 5, 6, 7, 8, 19. California, 3, 4, 5, 8, 13, 14, 16, 17, 24, 30, 31. Colorado, 18. Connecticut, 28. Georgia, 20, 21. Idaho, 16, 26, 28, 29, 30, 31. Illinois, 7, 17, 19, 20. Indiana, 7. Iowa, 5, 7, 16, 17, 19, 27. Kansas, 6, 7, 9, 18, 23, 26. Kentucky, 7, 20. Louisiana, 7, 19, 25, 27, 28. Maine, 5, 22, 23, 31. Maryland, 30. Massachusetts, 28, 29. Michigan, 16, 18. Minnesota, 17, 18, 19, 26. Mississippi, 19. Missouri, 6, 7, 8. Nebraska, 18, 26. Nevada, 4, 5, 8, 14, 16, 17, 24, 25, 28, 29, 30, 31. New Hampshire, 23, 24, 30. New Jersey, 24, 30. New Mexico, 25. New York, 24, 25, 28, 30. North Carolina, 29. Ohio, 7, 20. Oklahoma, 6, 7, 18. Oregon, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 28, 29, 30. Pennsylvania, 5, 30. Rhode Island, 31. South Dakota, 9, 17, 18, 31. Tennessee, 8, 20, 29. Texas, 6, 7, 8, 9, 18, 19, 20, 24, 26, 27. Utah, 5, 6, 15, 16, 17, 18, 25, 29, 31. Vermont, 30. Virginia, 23. Washington, 6, 7, 8, 11, 12, 17, 28, 30, 31. West Virginia, 29. Wisconsin, 15, 16, 18. Wyoming, 30, 31.

SLEET.

The following are the dates on which sleet fell in the respective States:

Arizona, 16. Arkansas, 19, 29. California, 3, 4, 5, 8, 12, 13, 14, 16, 17, 24, 31. Colorado, 5, 12, 13, 14, 15, 17, 18, 20, 30, 31. Delaware, 30. Illinois, 4, 6, 20, 23, 27. Indiana, 23, 24, 28. Iowa, 4, 22, 23, 26, 27. Kansas, 5, 14, 15, 22, 23, 26, 27. Maine, 10, 21, 23, 31. Maryland, 21, 30. Massachusetts, 3, 11, 23, 28, 29, 30. Michigan, 5, 6, 16, 17, 19, 20, 23, 24, 27. Minnesota, 9, 13, 14, 15, 16, 19, 20, 26. Missouri, 5, 7, 20, 23, 27. Montana, 16, 17. Nebraska, 5, 11, 13, 14, 15, 16, 18, 21, 25, 26. Nevada, 8, 13, 14, 24, 31. New Hampshire, 28, 30, 31. New Jersey, 24, 30. New York, 5, 24, 25, 28, 30, 31. North Carolina, 29. North Dakota, 7. Ohio, 23, 28. Oregon, 8, 9, 11, 13, 14. Pennsylvania, 5, 29, 30. South Dakota, 13, 15, 16, 18, 19, 21, 22, 26. Tennessee, 2, 24, 29, 30. Texas, 1, 2, 20. Utah, 4, 5, 6, 18, 25, 31. Virginia, 23, 29, 30. Washington, 3, 6, 7, 8, 9, 10, 11, 17, 28. West Virginia, 29, 30. Wisconsin, 4, 5, 16, 20, 21, 23, 24. Wyoming, 4, 5, 6, 16, 18, 26, 31.

In Canada.—Professor Stupart says:

The total precipitation of the month was less than average over the larger part of British Columbia, and even on the coast a portion of it was snow. In the Northwest Territories and Manitoba, where it was almost wholly snow, there were no pronounced differences from average. In Ontario there was practically no snow except along the north shore of Lake Superior, and the rainfall was in most localities a little short of the average, especially in the more central counties. In Quebec there was little or no snow, and the rainfall, which was just average at Montreal, was somewhat above average farther east. Over the larger part of the Maritime Provinces the precipitation was considerably in excess of the average, and in northern districts was partly snow, while farther south it was almost wholly rain. From a very limited number of reports it would appear that there is less snow on the ground in the northern portions of Cariboo than is usual at this date. There is still a considerable covering in Northern Alberta and in Saskatchewan, and the prairies of Southern Alberta and Assiniboia are not entirely bare, and even in Manitoba it was only during the last few days of the month that the sleighing disappeared. In Ontario, except in the extreme east and north, the ground was bare early in the month. In Quebec there is still snow on the ground from Quebec City eastward, and considerable snow still lies in the woods of northern New Brunswick.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	8	5.67	147	+1.8	+1.9
Middle Atlantic	12	4.75	123	+0.9	+1.5
South Atlantic	10	5.06	113	+0.6	+1.6
Florida Peninsula*	8	5.94	202	+3.0	+7.8
East Gulf	9	7.48	134	+1.9	+6.6
West Gulf	7	4.81	141	+1.4	+3.4
Ohio Valley and Tennessee	11	4.66	107	+0.3	+0.2
Lower Lake	8	2.72	108	+0.2	+0.4
Upper Lake	10	2.33	115	+0.3	−0.6
North Dakota*	8	0.41	51	−0.4	−0.6
Upper Mississippi Valley	11	2.30	100	0.0	−1.0
Missouri Valley	11	1.53	84	−0.3	−0.6
Northern Slope	7	0.88	100	0.0	−0.1
Middle Slope	6	1.34	100	0.0	+0.2
Southern Slope*	6	1.47	137	+0.4	+2.2
Southern Plateau*	13	1.31	144	+0.4	−0.5
Middle Plateau*	8	1.43	108	+0.1	−0.1
Northern Plateau*	12	1.36	93	−0.1	−1.8
North Pacific	7	4.76	92	−0.4	−4.6
Middle Pacific	5	5.47	138	+1.5	−0.3
South Pacific	4	3.84	171	+1.6	+0.3

*Regular Weather Bureau and selected voluntary stations.

HUMIDITY.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	82	+ 7	Missouri Valley	77	+ 5
Middle Atlantic	79	+ 7	Northern Slope	72	+ 5
South Atlantic	81	+ 6	Middle Slope	74	+14
Florida Peninsula	80	+ 6	Southern Slope	72	+17
East Gulf	84	+ 11	Southern Plateau	40	+ 4
West Gulf	78	+ 6	Middle Plateau	62	+ 6
Ohio Valley and Tennessee	79	+ 8	Northern Plateau	68	+ 2
Lower Lake	83	+ 7	North Pacific	75	0
Upper Lake	82	+ 3	Middle Pacific	78	+ 4
North Dakota	76	− 2	South Pacific	74	+ 3
Upper Mississippi Valley	78	+ 5			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IV, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 2149 thunderstorms were received during the current month as against 2035 in 1902 and 802 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country was most numerous were: 7th, 341; 20th, 230; 19th, 193.

Reports were most numerous from: Ohio, 127; Missouri, 119; Illinois, 112; Tennessee and Texas, 111.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz: 9th to 17th.

In Canada: Thunderstorms were reported at Bissett, 20th; Toronto, 20; Port Stanley, 20; Parry Sound, 18, 20. No auroras were reported.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Buffalo, N. Y	1	56	w.	New York, N. Y	25	52	nw.
Do	20	51	w.	North Head, Wash	9	60	s.
Cape Henry, Va	30	54	ne.	Do	10	90	s.
Charleston, S. C	29	55	ne.	Do	30	58	s.
Chicago, Ill	23	50	sw.	Point Reyes Light, Cal	8	64	nw.
Do	24	52	sw.	Do	9	54	nw.
Columbus, Ohio	23	51	w.	Do	28	53	se.
Denver, Colo	18	51	n.	Do	30	50	s.
Detroit, Mich	24	50	sw.	Syracuse, N. Y	7	56	s.
Dodge, Kans	17	50	s.	Tatoosh Island, Wash	9	66	sw.
Indianapolis, Ind	23	50	sw.	Do	13	54	e.
Marquette, Mich	30	50	sw.	Do	28	55	s.
Mount Tamalpais, Cal	8	52	nw.	Winnemucca, Nev	30	52	sw.
New York, N. Y	1	54	w.				

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The averages for the various districts, with departures from the normal, are shown in the following table:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.0	+ 0.4	Missouri Valley	5.5	− 0.1
Middle Atlantic	6.3	+ 0.8	Northern Slope	5.3	0.0
South Atlantic	6.5	+ 1.8	Middle Slope	5.2	+ 0.8
Florida Peninsula	5.5	+ 1.5	Southern Slope	4.0	− 0.2
East Gulf	7.5	+ 2.8	Southern Plateau	4.1	+ 1.1
West Gulf	6.3	+ 1.1	Middle Plateau	5.7	+ 0.8
Ohio Valley and Tennessee	7.0	+ 1.1	Northern Plateau	6.2	− 0.3
Lower Lake	6.6	+ 0.2	North Pacific	6.1	− 0.5
Upper Lake	6.5	+ 0.6	Middle Pacific	6.9	+ 1.9
North Dakota	5.6	+ 0.1	South Pacific	5.4	+ 0.9
Upper Mississippi Valley	6.0	+ 0.5			

DESCRIPTION OF TABLES AND CHARTS.

By MR. W. B. STOCKMAN, Forecast Official, in charge of Division of Meteorological Records.

For description of tables and charts see page 582 of REVIEW for December, 1902.